



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/063,151	03/26/2002	Hemant S. Shah	201-0171 CLH	2725
32997	7590	11/07/2003	EXAMINER	
TUNG & ASSOCIATES 838 WEST LONG LAKE, SUITE 120 BLOOMFIELD HILLS, MI 48302			MILLER, PATRICK L	
		ART UNIT	PAPER NUMBER	
		2837		

DATE MAILED: 11/07/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)
	10/063,151	SHAH ET AL.
	Examiner Patrick Miller	Art Unit 2837

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on 26 August 2003.

2a) This action is **FINAL**.                    2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 1-35 is/are pending in the application.

4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5) Claim(s) 14 and 19-29 is/are allowed.

6) Claim(s) 1-13,15-18 and 30-34 is/are rejected.

7) Claim(s) \_\_\_\_\_ is/are objected to.

8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on 03 March 2003 is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) The proposed drawing correction filed on \_\_\_\_\_ is: a) approved b) disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12) The oath or declaration is objected to by the Examiner.

#### Priority under 35 U.S.C. §§ 119 and 120

13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some \* c) None of:

1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) The translation of the foreign language provisional application has been received.

15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

#### Attachment(s)

1) <input type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____.
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.	6) <input type="checkbox"/> Other: _____.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1-3, 6, 10, 12, 13, 17, and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takeda (JP-11-093670) in view of Yoshida et al (5,096,013).
  - With respect to claims 1, 17, Takeda discloses a system for noise reduction from an air-moving device comprising: a shroud (Fig. 2, #41) having an inner surface disposed around an area defining an airflow (Fig. 2, inner surface of #41); an outer barrel connected to the shroud (Fig. 3, #42), the outer barrel having inner and outer surfaces extending from the shroud inner surface (Fig. 2, inner surface of outer barrel from #41 extending to outer surface #42); an outer noise silencer comprising at least one hollow cavity that attenuates predetermined noise frequencies (Fig. 2, #46a-c); and the outer noise silencer connected to the airflow by an opening of predetermined size through the outer barrel (Fig. 2, #49).
  - Takeda does not disclose an inner noise silencer disposed in the airflow, *the inner noise silencer having at least one cavity and at least one opening communicating with the cavity* (claims 1 and 17), and an inner barrel with at least one noise silencer attached to the air-moving device (claim 17).

- Yoshida et al disclose an inner barrel (Fig. 4, #21 is barrel shaped) noise silencer disposed in the airflow (Fig. 4, #21, 22). *The inner barrel of Yoshida et al is shaped in a cup-like shape. This means the barrel has a cavity and an opening to the cavity (fig. 6, cavity is #26, with the rim providing the opening).* The motivation to provide such is to reduce noise arising from fan operation (Col. 2, lines 1-3). This provides the advantage of sound absorption over a relatively wide frequency band (Col. 4, lines 47-49).
- Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to modify the system of Takeda with an inner noise silencer, thereby providing the advantage of absorbing sound over a relatively wide frequency band, as taught by Yoshida et al.
- With respect to claims 2 and 3, Takeda discloses the outer noise silencers are attached to the shroud and outer barrel outer surface (Fig. 2, #46a-c attaches to both #41 and #42, respectively).
- With respect to claim 6, Takeda discloses the outer barrel extending upstream of the air-moving device (Fig. 1, #4 upstream from #1).
- With respect to claims 10 and 32, Takeda discloses that the dimensions of the silencer can be built to attenuate resonant frequencies. This implies that a narrow band of frequencies (resonant frequency and frequencies close to resonant frequency) are attenuated [0015].
- With respect to claims 12 and 13, Takeda discloses the outer noise silencers in series (parallel to airflow) and parallel (perpendicular to airflow) (Fig. 2, #46a-c arranged in series; Fig. 3, #49 arranged in parallel).

2. Claims 4, 9, 11, 31, and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takeda and Yoshida et al as applied to claims 1 and 17 above, and further in view of Ngo (6,244,817).

- Takeda and Yoshida et al do not disclose stator members attached on the outer barrel inner surface (claim 4), the noise silencer is a broadband silencer (claims 9 and 31), and the noise silencer comprises both narrowband and broadband application (claims 11 and 33).
- Ngo discloses a stator attached to the outer barrel (Fig. 1, #308), the noise silencer is a broadband silencer, and the noise silencer comprises both narrowband and broadband application (Abstract). The motivation to provide such is to control backpressure (stator) (Col. 4, lines 8-14) and control broadband and narrowband noise components (Col. 2, lines 30-32 and 49-58). This provides the advantage of inhibiting flow in the upstream direction and inhibiting two types of noise, respectively.
- Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to modify the system of Takeda and Yoshida et al as described above, thereby providing the advantage of inhibiting upstream flow and inhibiting two types of noise, as taught by Ngo.

3. Claims 5, 7, 15, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takeda and Yoshida et al as applied to claim 1 above, and further in view of Ritenour (4,692,091).

- Takeda and Yoshida et al do not disclose outer barrel extending downstream and both upstream and downstream of the air-moving device (claims 5 and 7) and, the cavity further comprising a sound absorbing material made of steel wool (claims 15 and 16).
- Ritenour discloses an outer barrel that is located both upstream and downstream of the air-moving device (Fig. 1, #4 located upstream and downstream of #9) and a fibrous and metallic material (steel wool) that is used as a filler material inside a sound cell. The motivation for such is to provide the advantage of further damping noise and vibration (Col. 3, lines 13-19).
- Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to modify the system of Takeda and Yoshida et al so the outer barrel is both upstream and downstream of the air-moving device and so the cavities further comprise steel wool sound absorbing material, thereby providing the advantage of further damping noise and vibration, as taught by Ritenour.

4. Claims 8 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takeda and Yoshida et al as applied to claims 1 and 17 above, and further in view of Periyathamby et al (6,309,176) [listed on IDS of first office action].

- Takeda and Yoshida et al do not disclose the outer noise silencer being a Helmholtz resonator.
- Periyathamby et al disclose an outer noise silencer being a Helmholtz resonator (Fig. 3). The motivation to make the outer noise silencers Helmholtz resonators is because Helmholtz resonators can be tuned to the blade passing tone of the fan. This provides the advantage of reducing said passing tone (Col. 1, lines 40-41).

- Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to modify the system of Takeda and Yoshida et al so the outer noise silencers are Helmholtz resonators, thereby providing the advantage of reducing passing blade passing tone, as taught by Periyathamby.

5. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takeda and Yoshida et al as applied to claim 1 above, and further in view of Takeshita (6,390,770) [listed on IDS of first office action].

- Takeda and Yoshida et al do not disclose the outer noise silencer comprising a pipe disposed between the opening through the outer barrel and the hollow cavity.
- Takeshita disclose a pipe-like portion that is disposed between the opening in the outer barrel and the hollow cavity (Fig. 8, small pipe portion between 10b and 40A). The motivation to provide such is so portion 40A can be fitted to portion 10b. This provides the advantage of being able to interchange part 40A for a part seen in Figure 4 (40A) or Figure 15 (40C). This provides the advantage of sizing the damping means for specific space restrictions.
- Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to modify the system of Takeda and Yoshida et al with a pipe as disclosed above, thereby providing the advantage of sizing the damping means for specific space restrictions, as taught by Takeshita.

6. Claim 34 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takeda (JP-11-093670) in view of Takeshita (6,390,770) [listed on IDS of first office action].

- Takeda discloses a system for noise reduction from an air-moving device comprising: a shroud (Fig. 2, #41) having an inner surface disposed around an area defining an airflow (Fig. 2, inner surface of #41); a generally cylindrical outer barrel connected to the shroud (Fig. 3, #42), the outer barrel having inner and outer surfaces extending from the shroud inner surface (Fig. 2, inner surface of outer barrel from #41 extending to outer surface #42); a noise silencer (Fig. 2, #46a-c) connected to the airflow by an opening of predetermined sized through the outer barrel (Fig. 2, #49).
- Takeda does not disclose a pipe extending radially between the opening through the outer barrel and the hollow cavity.
- Takeshita disclose a pipe-like portion that is disposed between the opening in the outer barrel and the hollow cavity *and communicates with the opening through the outer barrel and the hollow cavity*. (Fig. 8, small pipe portion between 10b and 40A). The motivation to provide such is so portion 40A can be fitted to portion 10b. This provides the advantage of being able to interchange part 40A for a part seen in Figure 4 (40A) or Figure 15 (40C). This provides the advantage of sizing the damping means for specific space restrictions.
- Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to modify the system of Takeda with a pipe as disclosed above, thereby providing the advantage of sizing the damping means for specific space restrictions, as taught by Takeshita.

***Allowable Subject Matter***

7. Claims 14, 19-29, and 35 are allowed.
8. The following is a statement of reasons for the indication of allowable subject matter:
  - With respect to claim 14, the Prior Art does not disclose a system for noise reduction for a plurality of fans, where each fan has an outer barrel.
  - With respect to claim 19, the Prior Art does not disclose resonating an air plug in combination with a fan shroud having an outer barrel.
  - With respect to claim 21, the Prior Art discloses pipes extending between the opening through the outer barrel and the hollow cavity, but does not disclose the pipes being generally spiral.
  - With respect to claim 35, the Prior Art discloses pipes extending between the opening through the outer barrel and the hollow cavity, but does not disclose the pipes extending parallel to the airflow.

***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a). A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

Art Unit: 2837

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patrick Miller whose telephone number is 703-308-4931. The examiner can normally be reached on M-F, 8:30-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Nappi can be reached on 703-308-3370. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-306-3431.

Patrick Miller  
Examiner  
Art Unit 2837

pm  
November 3, 2003

  
ROBERT NAPPI  
SUPERVISORY PATENT EXAMINER